



Section C:1

Nuclear Material Stabilization

PROJECT MANAGERS

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SUMMARY

The Nuclear Material Stabilization (NMS) mission consists of the Plutonium Finishing Plant (PFP), WBS 1.4.5 (PBS TP05).

NOTE: The Safety, Conduct of Operations, milestone table and Cost/Schedule data contained herein is as of June 30, 2001. Other information is updated as noted through July 24, 2001.

Fiscal-year-to-date milestone performance (EA, DOE-HQ, and RL) shows that three milestones (50 percent) were completed on or ahead of schedule, one milestone (17 percent) was completed late, and two milestones (33 percent) are overdue. Further details can be found in the milestone exception report following the cost and schedule variance analysis.

NOTABLE ACCOMPLISHMENTS

Maintain Safe & Secure SNM

Completed installation of six (6) additional twenty-eight (28) position storage racks in Vault 4 for storage of 3013 containers. Installation of the new Proximity Card Readers and Surveillance Cameras (part of the Remote Material Surveillance System Upgrade) in 234-5Z is now 75% complete and is projected to meet the scheduled August completion date.

Maintain Safe and Compliant PFP

The Nuclear Material Stabilization Project (NMSP) planning update was completed June 30, 2001. This deliverable incorporates \$89M in life cycle breakthrough initiative reductions and rebaselines the solution project. (Baseline Change Requests FSP-2001-061 and FSP-2001-064). Through June 30, 2001, there were 577 calendar days (over 1.9 million staff hours) since the last recorded lost workday injury. The Facility Evaluation Board (FEB) on-site assessment was completed June 11, 2001. The final FEB report was issued July 27, 2001.

Stabilization of Nuclear Material

Residues $\frac{3}{4}$ Repackaging of the 31 plutonium/aluminum (Pu/Al) Alloys Group 1 was initiated on June 11, 2001, and completed on June 19, 2001 thereby completing the residues packaging portion of milestone TRP-01-501, "Complete Plutonium Alloy Stabilization or Shipment." The Carlsbad Area Office (CAO) audited the PFP WIPP program and is expected to certify the packaging and the visual examination technique areas.

Oxides/Metals $\frac{3}{4}$ Thermal stabilization and packaging of Pu alloys was initiated. The fifteen alloy items that were evaluated to be candidates for brushing and packaging were taken into the glove box and opened. Four of them were not suitable for brushing and were thermally stabilized to 3013 criteria. The remaining eleven were brushed and welded into a bagless transfer container. Seven other alloy items were tested for stability in the PPSL. As a part of testing, the items were fully stabilized to 3013 criteria. These items have been sealed into food pack cans and placed into vault storage. Fabrication of the device for relieving pressure in a BTC or 3013 can was completed and the ATP/OTP initiated. Preparations for startup of BTC packaging of oxides were initiated. Two (2) Limiting Condition for Operation (LCO) and one Administrative Control (AC) were put into place to control the operability and requirements for fire protection in the 2736-ZB facility. An additional AC was put into place for surveillance of BTC

pressurization. The Readiness Assessment (RA) for this activity began July 19, 2001 and is projected to be completed July 25. RL approval is expected by July 30.

Solutions ¾ A total of forty-seven (47) liters were processed through the magnesium hydroxide [Mg(OH)₂] hot plates during the month of June, bringing the FYTD total to 562 liters. The implementation checklist for the second, two-boat hot plate was completed on June 18, 2001. Glovebox temperature profiles and radiation surveys were completed on June 30, 2001 following the first 2 drying evolutions with the two hot plates. Baseline Change Request (BCR) FSP-2001-064 documenting schedule and cost changes associated with: (1) oxalate precipitation, (2) direct discard and (3) descoping the operation of the prototype vertical denitration calciner was approved on July 10, 2001 by Fluor Hanford. RL has also been formally requested to revise the DOE-HQ Defense Nuclear Facility Safety Board (DNFSB) 94-1/200-1 Implementation Plan to reflect this change in solutions stabilization processing.

Oxalate Precipitation ¾ Processing of 30 liters (in 3 precipitation columns) of double pass filtrate (DPF) with oxalate precipitation was completed on Friday, July 13, 2001. A Supplement Analysis (SA) to the EIS, which documents the addition of the oxalic acid and direct discard processes, has been submitted to RL for approval.

Direct Discard ¾ A decision has been made to proceed with the direct discard option. A safeguards termination letter was submitted to DOE-HQ for approval on June 28, 2001 for the material to be included in this option. Installation of the containment tent has been completed. The Startup Notification Technical Description was finalized and transmitted to RL for approval on July 12, 2001.

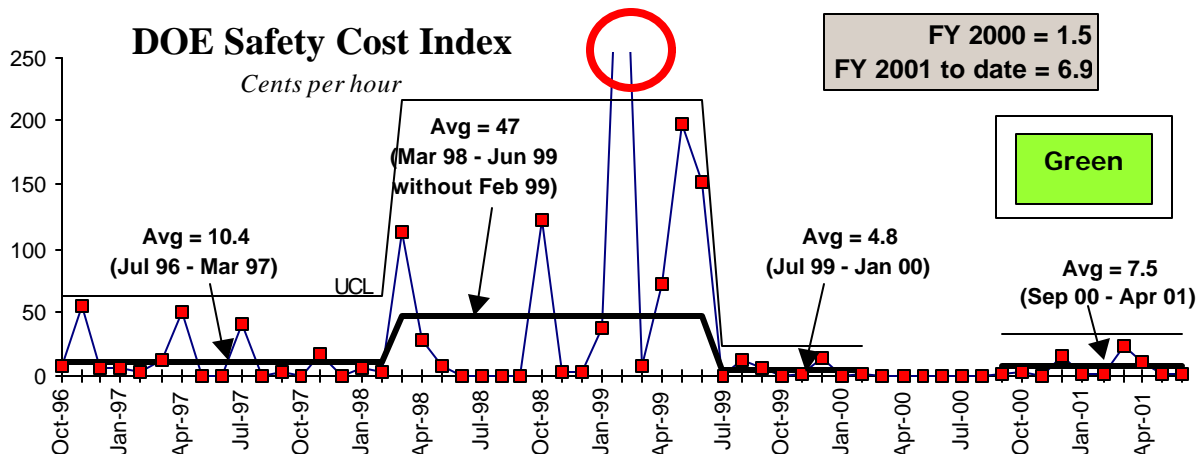
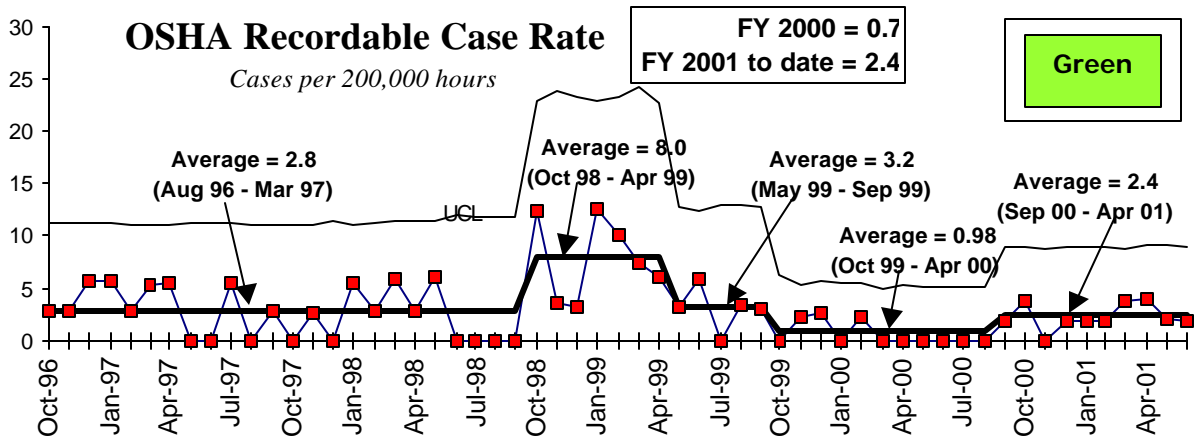
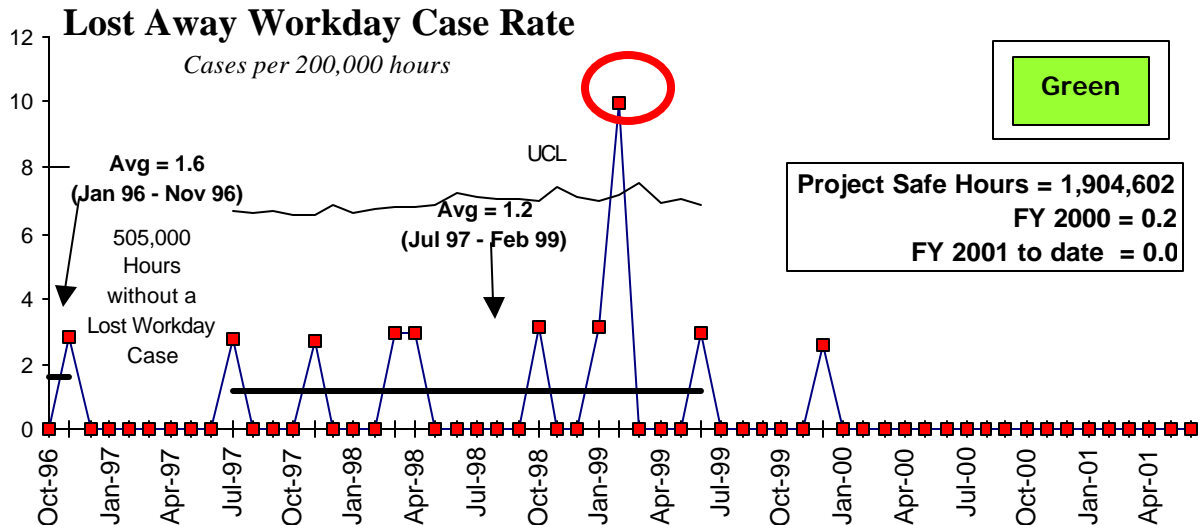
Disposition of Nuclear Material ¾ Through July 19, 2001, the Outer Can Welder has produced two hundred and seventy-two (272) DOE-STD-3013 containers since startup on April 10, 2001. The facility completed the Standard Start up Review for the 2736-Z vault modifications required for storage of 3013 containers. All vault racks scheduled to be installed in FY 2001 have been fabricated and installed providing the plant with the needed rack configuration for the 3013 outer cans. The modifications to the digital radiograph unit to remove the transformers and therefore the fire loading from room 637 have been completed and the Acceptance Test Procedure (ATP) for the unit has been completed. One exception to the ATP is being corrected with the unit scheduled to be placed in service by the week of July 23. All of the major pieces of hardware except the retorts and furnace doors have been received. The last pieces of hardware are scheduled to arrive August 3.

Plutonium Facility Deactivation

The 241-Z-361 Tank Characterization Report was completed two days ahead of schedule on Thursday, June 28. DOE-HQ (EM-22, National Facility Deactivation Initiative) has authorized \$60 thousand in FY 2001 funding for two studies directly supporting PFP decommissioning. One study will review the current NMS Project Basis of Estimate against developing technology and best practices now being applied at other DOE and commercial nuclear sites for facility cleanout, equipment decontamination, and size reduction. The second study will compare the advantages and disadvantages of managing the PFP decommissioning project under CERCLA versus RCRA. It also appears that up to \$250 thousand may be available from DOE-HQ (EM-22 and EM-40) in FY 2001 and 2002 to support the further evaluation of alternative plutonium storage concepts at Hanford. A proposal for use of these funds is being jointly developed by FH and RL and will be submitted to DOE-HQ during July.

SAFETY

Through June 30 2001, there were 577 calendar days (exceeding 1.9 million staff hours) since the last recorded lost workday injury. There has however, been an increase in the OSHA recordable case rate. Management staff has increased its presence in the field during all shifts to address this recent trend.



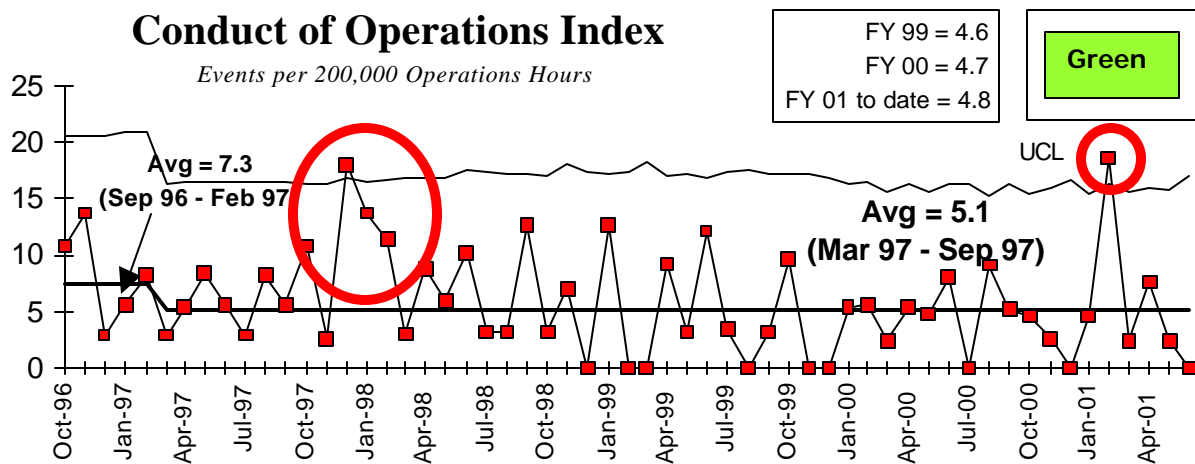
ISMS STATUS

Preparations for the Voluntary Protection Plan "Star" status application are on going.

Green

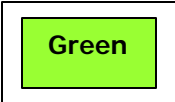


CONDUCT OF OPERATIONS

Management staff has increased its presence in the field during all shifts to address the recent upward trend.



BREAKTHROUGHS / OPPORTUNITIES FOR IMPROVEMENT

Breakthroughs

- **Project W-460** ¾ This project will complete construction by October 1, 2001 (eighteen months ahead of the original schedule). 
- **International Atomic Energy Agency (IAEA)** ¾ The new Epithermal Neutron Multiplicity Counter (ENMC) received from Los Alamos National Laboratory (LANL) and tested at PFP has proven to be a faster and more accurate way to measure material. If PFP and Protection Technology Hanford can qualify the counter, additional items may Undergo nondestructive assay per day than is currently possible with existing calorimetry. This approach may also prevent a backlog of items needing measurement. *(No further status to be provided).* 
- **New hot plate design** ¾ A procurement contract was placed with Bellhaven to provide an improved hot plate for use in the 230-C-2 glovebox. A new design, to improve the reliability of the hot plate and drying of the precipitate, has been developed and a prototype is in fabrication for testing at PFP. The prototype is scheduled to be available the last week of July 2001. 

Opportunities for Improvement

Nothing to report.

UPCOMING ACTIVITIES




Disposition of Nuclear Material – Complete Project W-460 construction activities by October 1, 2001. Complete hot startup of the 2736-ZB Stabilization and Packaging System (W-460) by November 12, 2001.


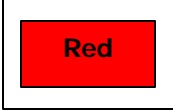
Oxides/Metals – Complete stabilization and repackaging of Pu metals and oxides in 3013 outer cans by August 31, 2001.

MILESTONE ACHIEVEMENT

MILESTONE TYPE	FISCAL YEAR-TO-DATE				REMAINING SCHEDULED			TOTAL FY 2001
	Completed Early	Completed On Schedule	Completed Late	Overdue	Forecast Early	Forecast On Schedule	Forecast Late	
Enforceable Agreement	1	0	0	0	0	1	0	2
DOE-HQ	0	0	0	1	0	1	0	2
RL	2	0	1	1	0	1	0	5
Total Project	3	0	1	2	0	3	0	9

Only TPA/EA milestones and all FY2001 overdue and forecast late milestones are addressed in this report. Milestones overdue are deleted from the Milestone Exception Report once they are completed. The following chart summarizes the FY2001 TPA/EA milestone achievement and a Milestone Exception Report follows. The last milestone table summarizes the first six months of FY 2002 TPA/EA milestones.

FY2001 Tri-Party Agreement / EA Milestones			
M-083-07 (TRP-01-515)	"Complete Repackaging & Shipping of Rocky Flats Ash to the CWC"	Due April 30, 2001 – Completed on March 29, 2001.	
M-083-08 (TRP-01-516)	"Complete Requirements to Ship Rocky Flats Ash to WIPP"	A change package has been approved that reschedules FH and RL negotiations with the regulators to begin November 2001. The NMSP believes responsibility for this milestone resides with Waste Management. Efforts are underway to relocate this milestone accordingly.	
DNFSB Commitments			
M-IP-114 (TRP-01-501) R94-01	"Ship Alloys to SRS or Complete Stabilization of Alloys"	Due June 30, 2001 – BTS packaging of metallic alloys and pipe-n-go packaging of residue alloys were completed June 19, 2001. Completion of this activity is on hold pending a new moisture measurement method.	

M-IP-110 (TRP-02-500)	"Complete Packaging of Metal Inventory"	Due August 31, 2001 – On schedule.	
M-IP-106 (TRP-01-500) (R94-01)	"Complete Stabilization & Packaging Plutonium Solutions"	Due December 31, 2001 – Baseline Change Request FSP-2001-064 was approved that extends completion of this workscope from December 31, 2001 to July 31, 2002. A letter was sent to RL requesting the milestone in the Implementation Plan be changed.	

MILESTONE EXCEPTION REPORT

<u>Number/WBS</u>	<u>Level</u>	<u>Milestone Title</u>	<u>Baseline Date</u>	<u>Forecast Date</u>
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Overdue – 2

TRP-01-510	RL	Complete Annual IPMP Revision	05/31/2001	08/31/2001
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1.4.5

Cause: Agreement between FH and RL allowed deferral of this milestone due to the June 30, 2001 Nuclear Material Stabilization Project (NMSP) rebaseline commitment.

Impact: None.

Corrective Action: None.

TRP-01-501	HQ	Ship Alloys to SRS or Complete Stabilization of Alloys 06/30/2001	TBD
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1.4.5

Cause: Completion of this activity is on hold pending a new moisture measurement method.

Impact: Currently being evaluated. A lack of an approved moisture measurement system could be significant.

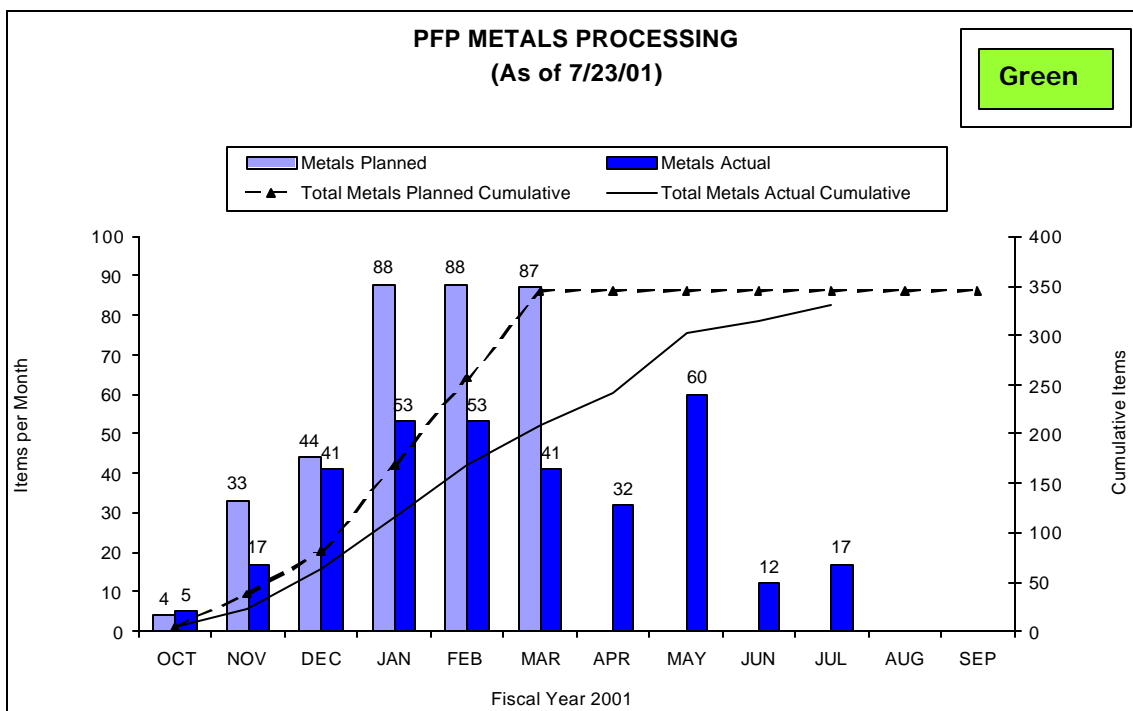
Corrective Action: FH, RL, and other sites throughout the DOE complex are currently investigating alternate moisture measurement technologies.

FY 2002 Tri-Party Agreement / EA Milestones

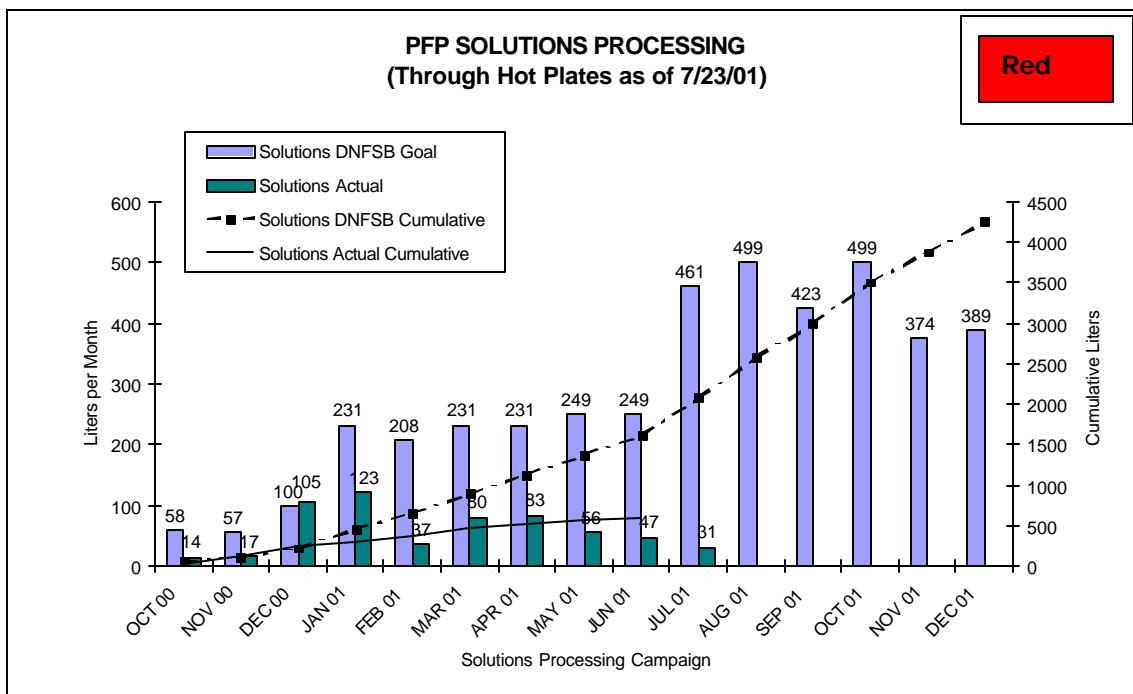
Number	Milestone Title	Status
	Nothing to report at this time.	

PERFORMANCE OBJECTIVES

OXIDES/METALS/POLYCUBES STABILIZATION

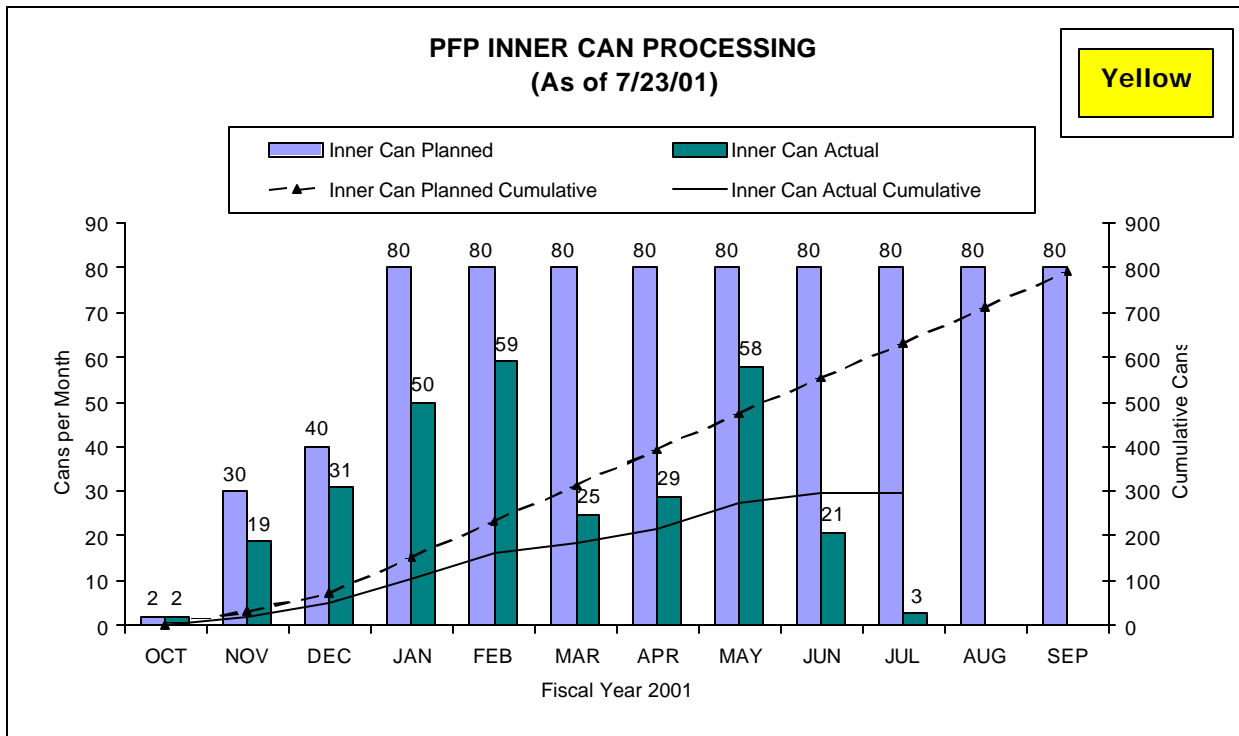


SOLUTIONS STABILIZATION



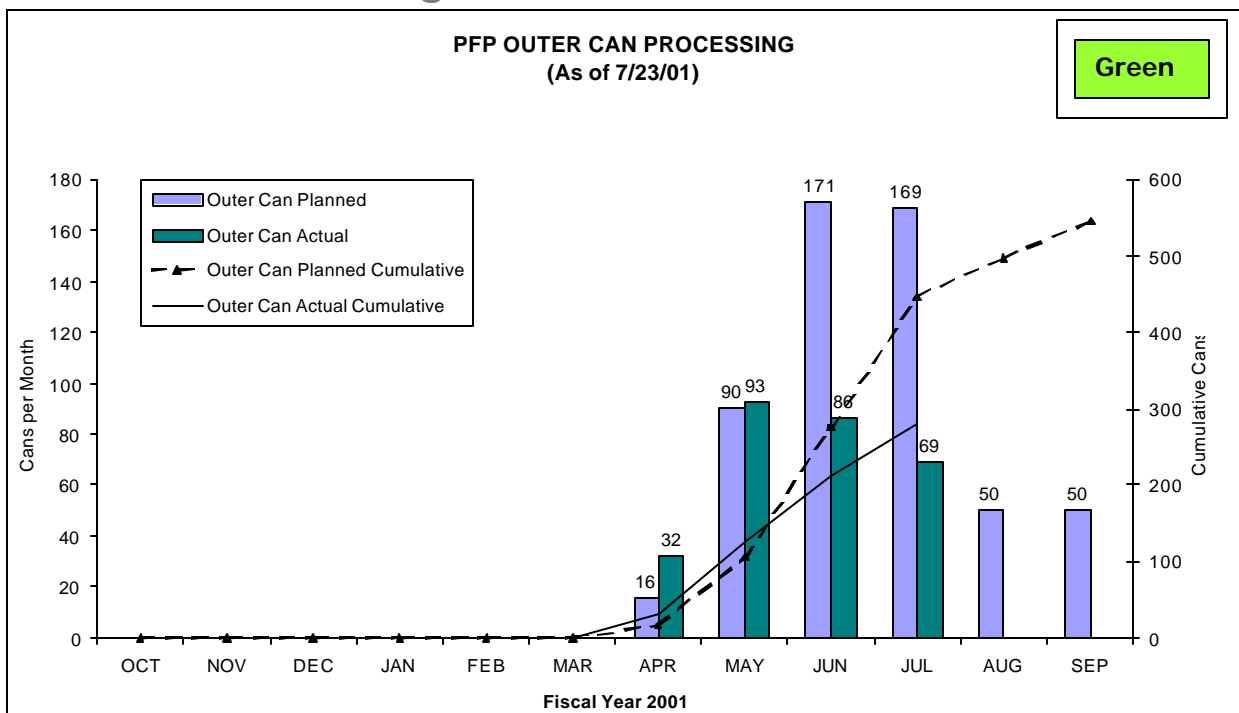
Baseline Change Request FSP-2001-064 was approved, extending completion of this workscope from December 31, 2001, to July 31, 2002. A letter was sent to RL requesting the milestone in the Implementation Plan be changed.

Inner Can Processing

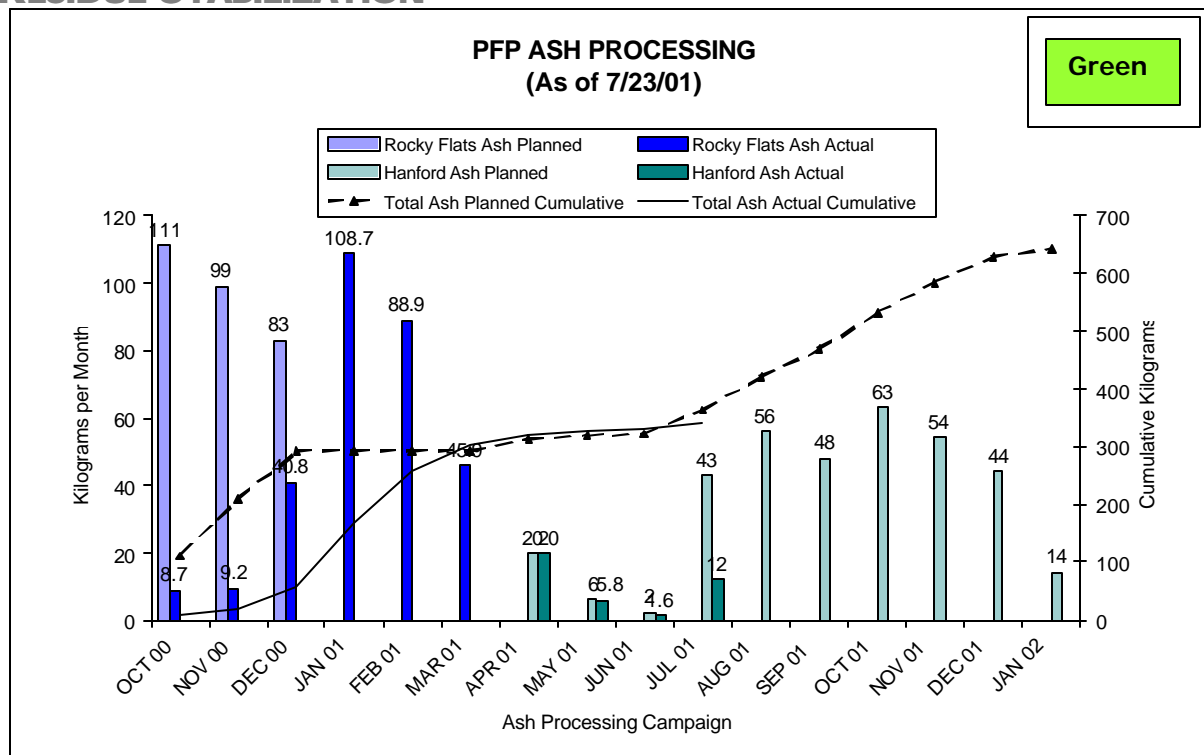


Operational reliability of the 245-5Z Bagless Transfer System (BTS) and the recent disqualification of the Super Critical Fluid Extraction System (SFE) as a moisture measurement system have impacted this activity.

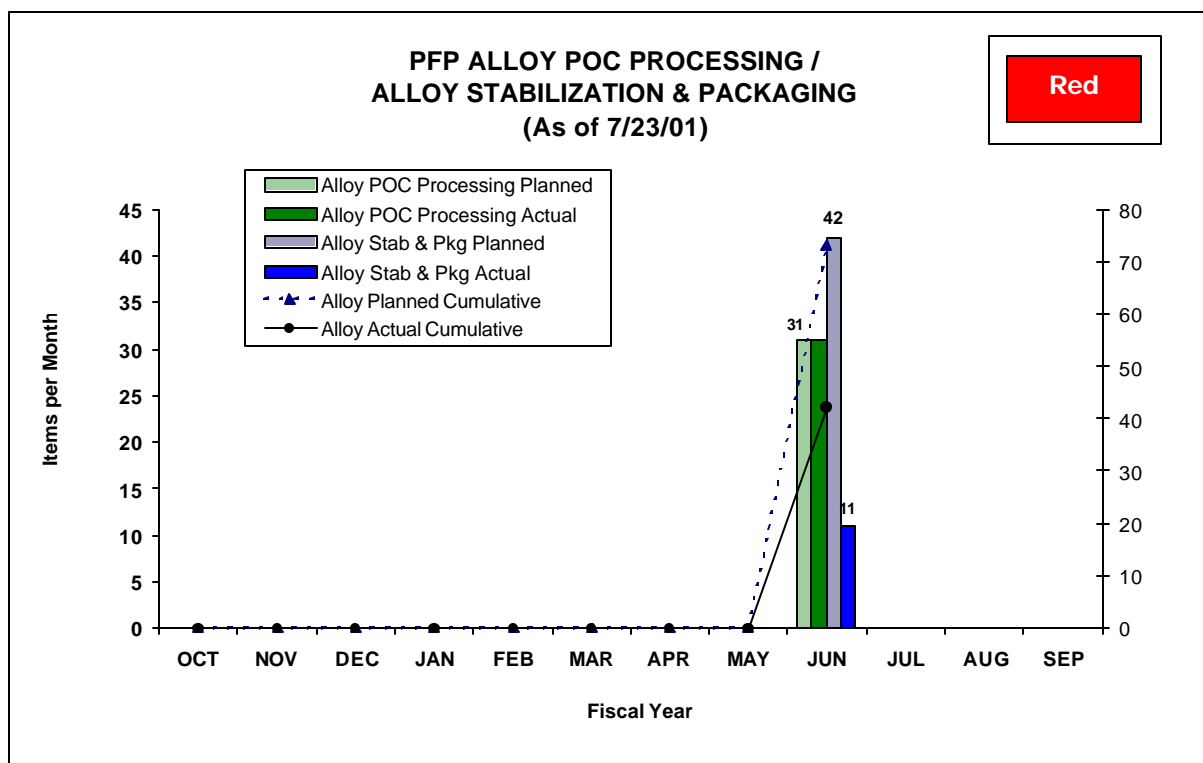
PFP Outer Can Processing



RESIDUE STABILIZATION



ALLOY STABILIZATION & PACKAGING



Completion of this activity is on hold pending a new moisture measurement method.

FY 2001 SCHEDULE / COST PERFORMANCE – ALL FUND TYPES

CUMULATIVE TO DATE STATUS – (\$000)

		FYTD								
By PBS		BCWS	BCWP	ACWP	SV	%	CV	%	PEM	EAC
WBS 1.4.5 PFP										
PBS TP05 Deactivation		\$ 82,095	\$ 77,815	\$ 80,040	\$ (4,280)	-5%	\$ (2,225)	-3%	\$ 113,359	\$ 114,586
Total		\$ 82,095	\$ 77,815	\$ 80,040	\$ (4,280)	-5%	\$ (2,225)	-3%	\$ 113,359	\$ 114,586

FY TO DATE SCHEDULE / COST PERFORMANCE

Both the unfavorable schedule and cost variances are within established thresholds.

For all active sub-PBSs and TTPs associated with the Operations/Field Office, Fiscal Year to Date (FYTD) Cost and Schedule variances exceeding + / - 10 percent or one million dollars require submission of narratives to explain the variance.

SCHEDULE VARIANCE ANALYSIS: (-\$4.3M)

Nuclear Materials Stabilization Project- 1.4.5/TP-05

Description/Cause: The current five percent unfavorable schedule variance is primarily attributable to a two percent schedule improvement in Project W-460. The Solutions Stabilization project continues to be plagued by generation of higher than planned quantities of precipitate per liter of solution through the Mg (OH)₂ process. A June 3, 2001 fire in the HA-211 furnace controller that affected availability of three furnaces also impacted the Solutions Stabilization project. Early operational reliability of the Bagless Transfer System (BTS) (since resolved) and recent Outer Can Welder (OCW) 3013 container weld porosity issues have further limited alloy and metal processing activities. The recent RL disqualification of the Super Critical Fluid Extraction system (SFE) has the potential to escalate additional oxide and alloys schedule slippage.

Impact: There is no schedule impact to Project W-460. Limited progress in the Solutions Stabilization Project has jeopardized two (2) DNFSB interim milestones, "Complete Solutions Stabilization" by December 31, 2001 and "Complete Stabilization of Polycubes" due in August 2002. As a result, Baseline Change Request FSP-2001-064 has been processed that extends completion of the solutions stabilization project from December 31, 2001 to July 31, 2002. This change, if approved, will also extend completion of milestone TRP-02-501, "Complete Stabilization & Packaging of Polycubes," from August 31, 2002 to December 31, 2002. A letter has been sent to RL requesting the milestones in the DOE-HQ DNFSB Recommendation 94-1/2000-1 Implementation Plan be modified. The DNFSB milestone to stabilize and package all plutonium by May 2004 remains intact. Expedient resolution of the SFE and OCW issues are necessary preclude further schedule impact.

Corrective Action: Project W-460 Project schedule recovery is expected. A second two-boat hot plate became operational on June 19, 2001 to increase the production rate of the Mg(OH)₂ process. Additionally, direct discard and a shift to an oxalate precipitation process in August 2001 are expected to further improve solutions stabilization processing. FH and RL are investigating alternative SFE moisture measurement technologies that will result in metals, alloys, and solutions processing schedule improvement.

COST VARIANCE ANALYSIS: (-\$2.2M)

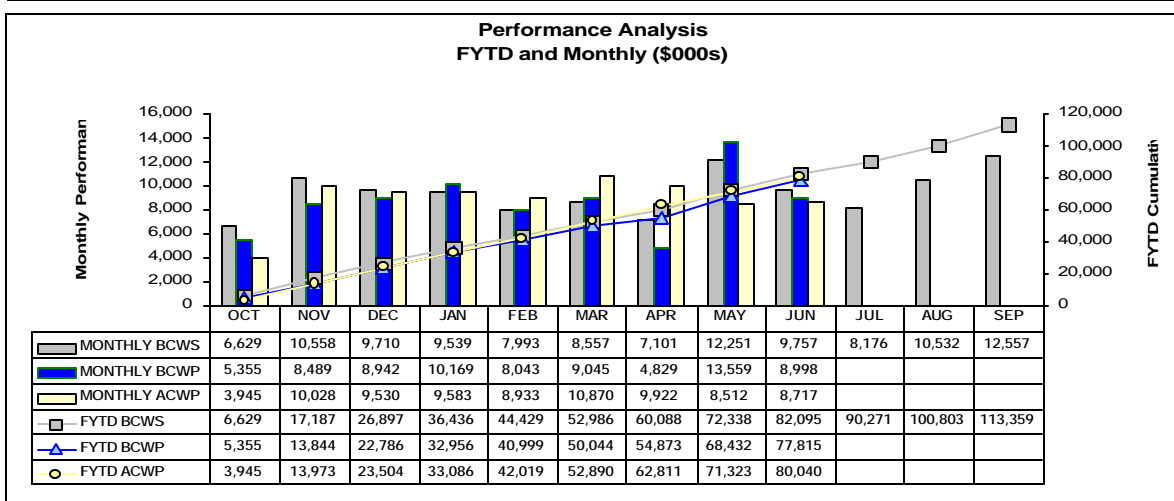
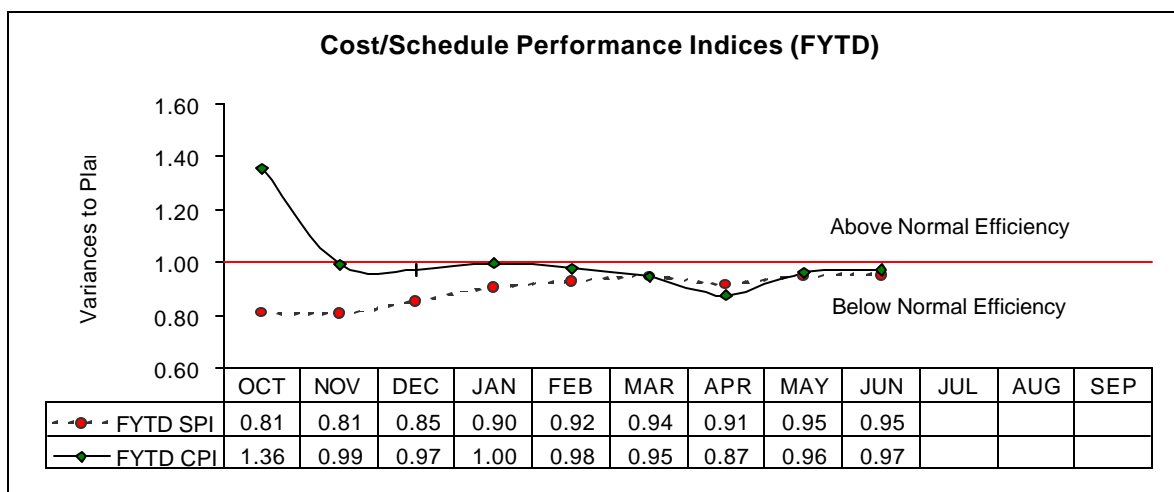
Nuclear Materials Stabilization Project- 1.4.5/TP-05

Description/Cause: The unfavorable cost variance of \$2,225K, or three percent, represents a \$640K, or two percent improvement from May 2001. The major contributors to the current cost variance are late completion of Rocky Flats Ash processing, extended metals stabilization due to operational reliability of the 234-5Z Bagless Transfer System (BTS), and cost increases associated with Project W-460 schedule recovery.

Impact: The per unit cost of processing and packaging alloys and metal items is expected to further increase until alternative SFE technologies for moisture measurement are developed and implemented. The costs associated with late completion of Rocky Flats Ash are non-recoverable. Efficiencies from other project areas are expected to cover this expense cost variance.

Corrective Action: Reclassification of selected completed Line Item costs to expense will enable the remaining Capital Line Item project W-460 work to be brought forward into FY 2001 to allow project completion by October 2001. Repair and alignment of the 234-5Z BTS unit has been completed and demonstrated improved operational reliability. Additionally, implemented cost control actions limiting overtime, subcontract costs and material purchases are showing positive results.

SCHEDULE / COST PERFORMANCE (MONTHLY AND FYTD)



FUNDS MANAGEMENT

FUNDS VS SPENDING FORECAST (\$000)

FY 2001 TO DATE

Yellow

	Funds	FYSF	Variance
1.4.5 Nuclear Materials Stabilization			
TP05			
Project Completion - Operating	\$ 95,812	\$ 94,197	\$ 1,615
- Line Item	\$ 12,125	\$ 12,125	0
Total	\$ 107,937	\$ 106,322	\$ 1,615

[Status through July 2001]

ISSUES

Technical Issues

Issue: The quantity of boats from the precipitation process continues to be above the estimate established during baseline characterization.

Impact: Baseline Change Request (BCR) FSP-2001-064 documenting schedule and cost changes associated with: (1) oxalate precipitation, (2) direct discard and (3) descopeing the operation of the prototype vertical denitration calciner was submitted and approved on July 2, 2001 by FH. A formal letter was sent to RL requesting the milestone in the Implementation Plan be changed. This BCR extends completion of solutions stabilization from December 31, 2001 to July 31, 2002.

Corrective Action: Startup operation of the oxalate precipitation is expected in August 2001. A decision has been made to proceed with the direct discard option and a Startup Notification Technical Description was finalized and transmitted to RL for approval.

Issue: Moisture measurement of stabilized oxides via supercritical fluids extraction was disapproved for use by RL.

Impact: As a result, there is no approved method for moisture testing of stabilized alloy oxides or an approved method for all impure oxides. As a result completion of the November 2003 stretch Performance Incentive may be impacted.

Corrective Action: Measurements for "pure" oxides can be performed via Loss on Ignition (LOI) as long as the ambient humidity in the analysis glove box does not exceed a predetermined value. The method for moisture measurements of impure oxides remains to be determined.

Issue: A portion of the oxides to be processed contains fairly high levels of chloride. The corrosive properties of the chloride off-gases will cause problems during thermal stabilization.

Impact: Completion of oxides stabilization could be impacted.

Corrective Action: Various efforts are continuing with Pacific Northwest National Laboratory (PNNL) and Rocky Flats to resolve the chloride issues (e.g., characterization and pretreatment, as

well as other methods). PNNL's request for funding (\$100K) from the Nuclear Material Focus Area has been approved and plans for testing are proceeding.

Issue: Without DOT-6M containers the PFP will not be able to complete their material shipment to Lawrence Livermore National Laboratory (LLNL).

Impact: The transfer of this material to LLNL will not be completed.

Corrective Action: The transfer of this material to LLNL accelerates vault de-inventory and reduces the number of items requiring stabilization thereby improving progress of the Performance Incentive. If this DOT 6M issue can be resolved, or a waiver granted to LLNL to use DOT-6M's, this transfer may still occur. The only option currently available is the 9975 container and it can only be used for metal shipments. The next revision of the SRS Safety Analysis Report for Packaging (SARP) for the 9975 container will allow oxides to be shipped but they must be greater than 85% Pu and packaged to 3013 criteria, which is due out in the next 3 months. Another SARP revision that will allow other oxides in 7-inch food pack cans is still a year or more away.

Issue: Completion of stabilization and packaging of plutonium alloys is contingent upon installation and testing of alternate moisture measurement equipment.

Impact: Completion of alloy processing will be carryover work scope for next fiscal year.

Corrective Action: The type of equipment and location are currently under evaluation.

Issue: The Nondestructive assay (NDA) calculation of plutonium concentrations in packaged waste has recently come under question. FH, Bechtel Hanford, and RL continue to address this issue.

Impact: In addition to PFP, there are impacts to the River Corridor Project (see Section C: 2).

Corrective Action: At this time approximately two hundred forty (240) items have been reanalyzed and recalculated. An additional four hundred items are expected to undergo a second non-destructive assay by September 14, 2001.

Regulatory, External, and DOE Issues and DOE Requests

Issue: No other issues identified at this time.

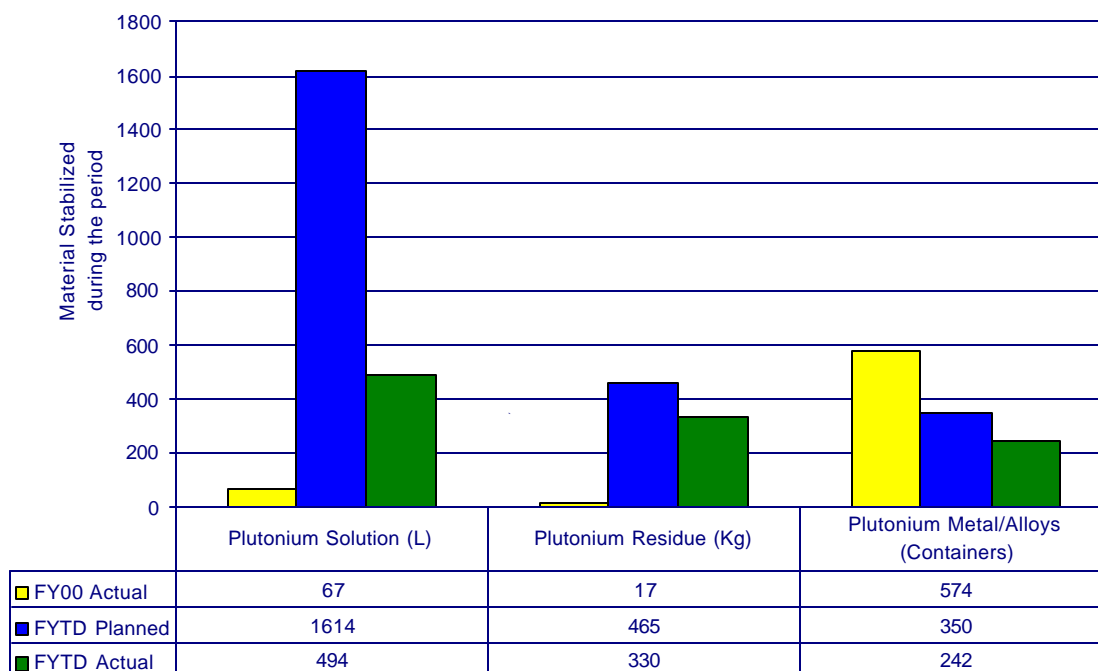
Impact: None at this time.

Corrective Action: None at this time.

BASELINE CHANGE REQUESTS CURRENTLY IN PROCESS

BCR NUMBER	DATE ASSIGNED	BCR TITLE	FY 01 IMPACT	SCH	TECH	DRAFT COPY	TO FH	FH APPROVAL	DOE-RL APPROVAL
FSP-2001-054	15-May-01	Interoffice Work orders	(\$1,835)	---	---	05-Jun-01	19-Jul-01		
FSP-2001-055	16-May-01	Direct Discard - Stabilized Mtl	-----	---	---	-----	--- Cancelled ---		
FSP-2001-061	19-Jun-01	Breakthrough Initiatives	-----	X	X	28-Jun-01	29-Jun-01	11-Jul-01	Not Required
FSP-2001-064	19-Jun-01	Solutions Rebaseline	-----	X	X	29-Jun-01	29-Jun-01	10-Jul-01	Not Required
FSP-2001-067	18-Jul-01	Delay SRIDs to FY 2002	TBD	X	---				
FSP-2001-068	18-Jul-01	Transfer 2nd BTS to CENRTC	-----	---	---				
FSP-2001-069	18-Jul-01	TGA Moisture Measurement	\$235	X	---				

Nuclear Materials Stabilized During the Current Period



Plutonium Solution: The Solutions Stabilization project continues to be plagued by generation of higher than planned quantities of precipitate per liter of solution through the $Mg(OH)_2$ process. A June 3, 2001 fire in the HA-211 furnace controller that affected availability of three furnaces also impacted the Solutions Stabilization project. As a result, Baseline Change Request FSP-2001-064 has been processed that extends completion of the solutions stabilization project from December 31, 2001 to July 31, 2002.

Plutonium Residues: Additional characterization and equipment calibration have delayed completion of Hanford Ash packaging.

Plutonium Metal/Alloys: Early operational reliability of the Bagless Transfer System (BTS) (since resolved) and recent Outer Can Welder (OCW) 3013 container weld porosity issues have further limited alloy and metal processing activities. Additionally, the recent RL disqualification of the Super Critical Fluid Extraction (SFE) as a moisture measurement system has the potential to escalate additional oxide and alloys schedule slippage. FH and RL are investigating alternative SFE moisture measurement technologies to mitigate further schedule slippage.

KEY INTEGRATION ACTIVITIES

- Techniques for improving the precipitate processing continue to be worked jointly by staff members of the PPSL and PNNL.
- Fluor Hanford, Bechtel Hanford and the Department of Energy Richland Operations Office (DOE) are working together to resolve questions regarding the NMSP provided calculation of plutonium concentration in packaged waste from two Hanford facilities undergoing deactivation in the 200 West Area.
- PFP is working with General Electric (GE) Vallecitos on a plan to transport a fuel pin to Hanford. This will assist GE Vallecitos with the final step in their nuclear material deinventory.
- PFP coordination with Lawrence Livermore National Laboratory (LLNL) to ship requested oxide material (81 kg) to that facility continues. A final determination of the material LLNL is requesting is still being negotiated. The shipper/receiver plan was submitted to LLNL for review. A meeting between DOE, LLNL and PFP to finalize transportation, container, and shipping agreements is expected to be held in mid-August.